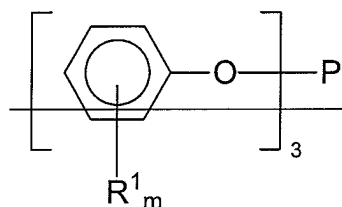

In the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (withdrawn) An additive composition for use as at least a partial replacement for mixed metal, alkali-metal and tin-based stabilizer additives for use in vinyl resins wherein said composition comprises:
 - (a) at least two phosphite esters selected from the group consisting of
 - (i) triaryl phosphites and C₁₋₉ alkyl substituted derivatives thereof,
 - (ii) C₈₋₁₅ alkyl phosphites,
 - (iii) mixed phosphites having at least one C₈₋₁₅ alkyl moiety and at least one aryl moiety therein, a combination of said moieties totaling three,
 - (iv) C₁₀₋₁₅ alkyl bisphenol-A phosphites and C₁₋₉ alkyl substituted derivatives thereof,
 - (v) poly- and mono- alkylene glycol phosphites,
 - (vi) C₈₋₁₅ pentaerythritol phosphites, and
 - (vii) mono- and di- C₈₋₁₅ alkyl *p*-cumyl phenol phosphites and C₁₋₉ alkyl substituted derivatives thereof; and
 - (b) a zinc additive wherein a molar ratio of P/Zn is from about 80:1 to 4:1, and wherein said composition is essentially free of calcium, cadmium, barium and tin.
2. (currently amended) The composition of claim 4 10 wherein
 - (a) said ratio is from about 75:1 to 6:1.
3. (currently amended) The composition of claim 2 wherein
 - (a) said ratio is from ~~bout~~ about 73:1 to 8:1.
4. (currently amended) The composition of claim 4 10 wherein said at least two phosphite esters are selected from the group consisting of
 - (a) ~~triaryl phosphites and C₁₋₉ alkyl substituted derivatives thereof of formula (I)~~



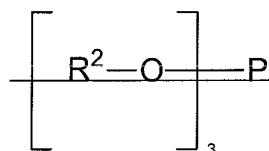
(I)

wherein

R^1 is independently selected from the group consisting of H and C_{1-9} -alkyl, and

m is an integral value from 0 to 1 inclusive,

(b) C_{8-15} -trialkyl phosphites of formula (II)

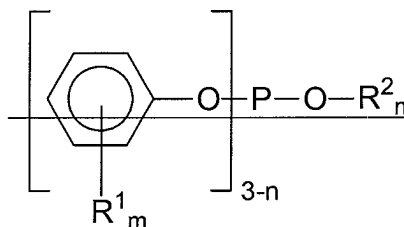


(II)

wherein

R^2 is selected from the group consisting of C_{8-15} -alkyl,

(c) mixed phosphites having at least one C_{8-15} -alkyl moiety and at least one aryl moiety of formula (III)



(III)

wherein

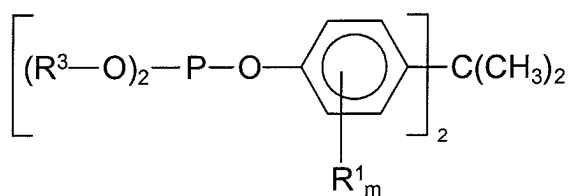
R^1 is as previously defined,

R^2 is as previously defined,

m is as previously defined, and

n is an integral value from 1 to 2,

(d)(a) C_{10-15} alkyl bisphenol-A phosphites of formula (IV) and C_{1-9} alkyl substituted derivatives thereof



(IV)

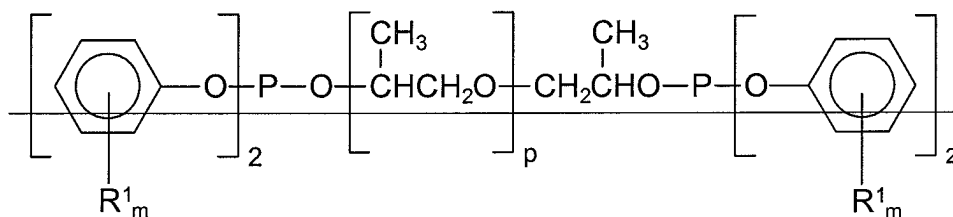
wherein

R^1 is as previously defined, is independently selected from the group consisting of H and C_{1-9} alkyl, and

R^3 is C_{10-15} alkyl, and

m is as previously defined, is an integral value from 0 to 1 inclusive, and

(e) ~~poly- and mono-alkylene glycol phosphites of formula (V)~~



(V)

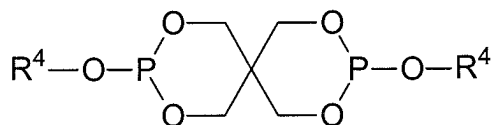
Wherein

R^1 is as previously defined,

m is as previously defined, and

p is an integral value from 0 to 1 inclusive,

(f)(b) C_{8-15} pentaerythritol phosphites of formula (VI) and C_{1-9} alkyl substituted derivatives thereof

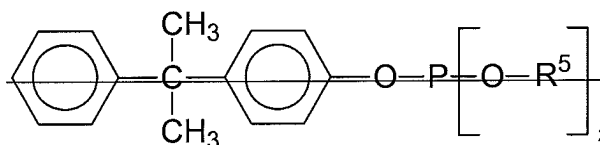


(VI)

wherein

R^4 is the same as R^1 , and

(g) mono- and di- C_{8-15} alkyl *p*-cumyl phenol phosphites and C_{1-4} alkyl substituted derivatives thereof of formula (VII)



(VII)

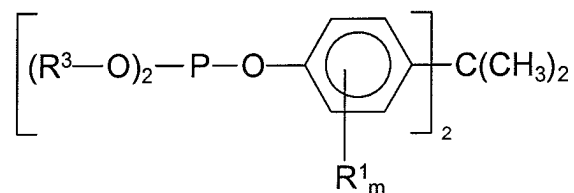
wherein

R^5 is the same as R^1 .

5. (currently amended) The composition of claim 4 wherein a percentage weight loss of said additive composition as measured as a difference between a start and an end weight of said composition as measured after exposure to two hours at 110°C, is less than 1% by weight.
6. (currently amended) The additive composition of claim 5 wherein a percentage weight loss is less than 0.5% by weight.

7. (currently amended) The composition of claim 4 wherein

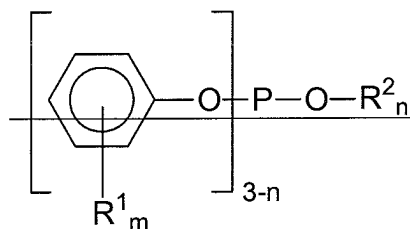
- (a) a first phosphite ester is C₁₀₋₁₅ alkyl bisphenol-A phosphites of formula (IV) and C₁₋₉ alkyl substituted derivatives thereof



(IV), and

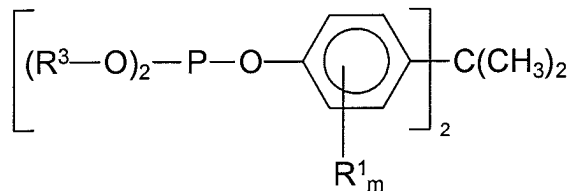
- (b) at least one second phosphite ester is selected from the group consisting of

- (i) ~~mixed phosphites having at least one C₈₋₁₅ alkyl moiety and at least one aryl moiety of formula (III)~~



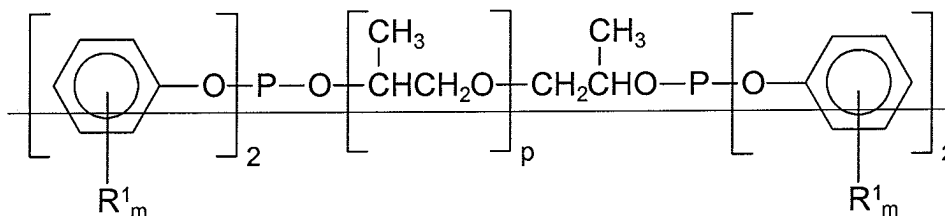
~~(III),~~

- ~~(ii)(i)~~ C₁₀₋₁₅ alkyl bisphenol-A phosphites of formula (IV)



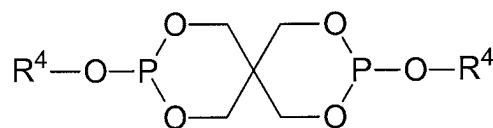
(IV), and

- ~~(iii) poly- and mono-alkylene glycol phosphites of formula (V)~~



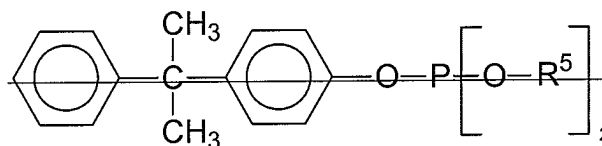
(V),

(iv) (ii) C₈₋₁₅ pentaerythritol phosphites of formula (VI)



(VI),

(v) ~~mono and di-C₈₋₁₅ alkyl p-cumyl phenol phosphites and C₄₋₄ alkyl substituted derivatives thereof of formula (VII)~~



(VII),

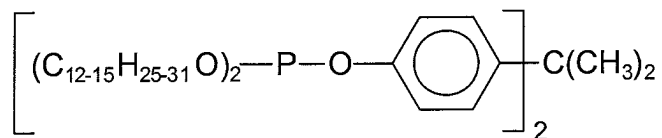
wherein

~~R¹, R², R³, R⁴, R⁵, m, n and p are as previously defined.~~

8. (deleted)

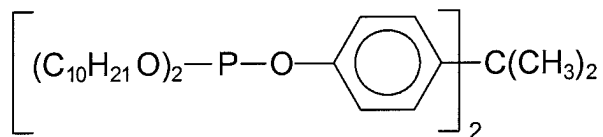
9. (currently amended) The composition of claim 4 10 wherein said phosphite ester is selected from the group consisting of

C₁₂₋₁₅ bisphenol-A phosphite of formula (VIII)



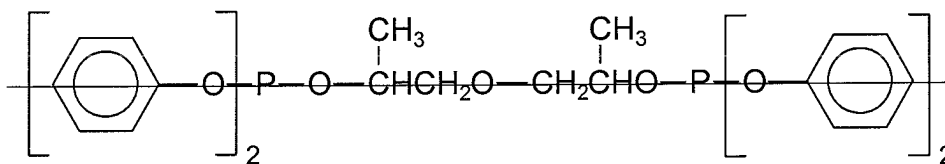
(VIII), and

C₁₀ bisphenol-A phosphite of formula (IX)



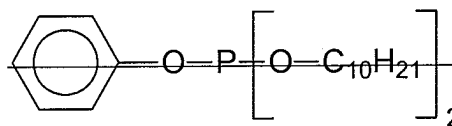
(IX)_n

tetraphenyl-dipropylene-glycol-diphosphite of formula (X)



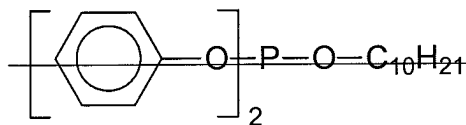
(X)_n

phenyl-diisodecyl phosphite of formula (XI)



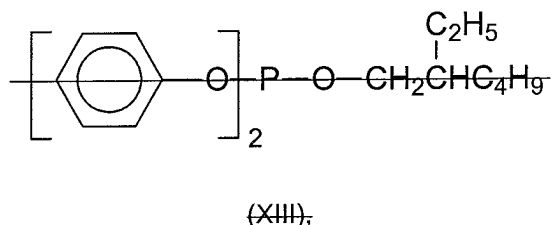
(XI)_n

diphenyl isodecyl phosphite of formula (XII)

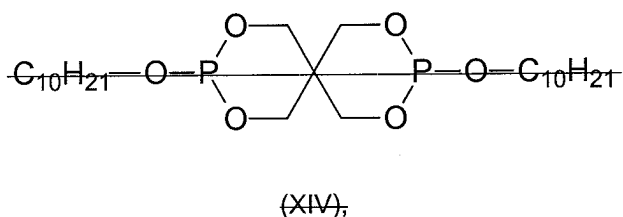


(XII)_n

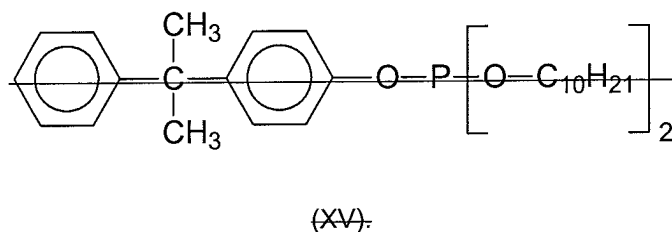
diphenyl 2-ethylhexyl phosphite of formula (XIII)



diisodecyl PE diphosphite of formula (XIV), and



mono-*p*-cumyl phenol diisodecyl phosphite of formula (XV)



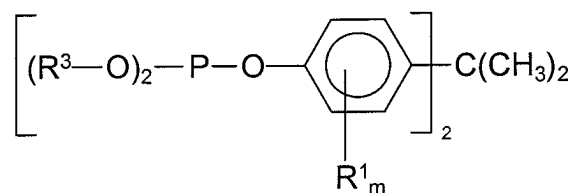
10. (currently amended) The composition of claim 1 which further comprises A stabilized vinyl resin which comprises:

- (a) an additive composition for use as at least a partial replacement for mixed metal, alkali-metal and tin-based stabilizer additives for use in said vinyl resin; and
- (b) a halogenated resin; and
- (c) wherein said additive composition consists of:
 - (i) at least two phosphite esters selected from the group consisting of C₁₀₋₁₅ alkyl bisphenol-A phosphites and C₁₋₉ alkyl substituted derivatives thereof, and C₈₋₁₅ pentaerythritol phosphites;
 - and

(ii) a zinc additive wherein a molar ratio of P/Zn is from about 80:1 to 4:1, and further wherein said additive composition is free of calcium, cadmium, barium and tin.

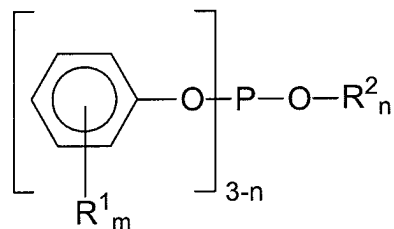
11. (original) The composition of claim 10 wherein a level of zinc is approximately 50 to 800 ppm zinc per 100 parts resin.
12. (original) The composition of claim 11 wherein said level of zinc is approximately 100 to 500 ppm zinc per 100 parts resin.
13. (original) The composition of claim 12 wherein said level of zinc is approximately 100 to 250 ppm zinc per 100 parts resin.
14. (original) The composition of claim 11 wherein said halogenated resin is flexible polyvinyl chloride.
15. (withdrawn) An additive composition for use as at least a partial replacement for mixed metal and tin-based stabilizer additives for use in resins wherein said composition comprises at least two phosphite esters, and wherein:

- (a) a first phosphite ester is C₁₀₋₁₅ alkyl bisphenol-A phosphites of formula (IV) and C₁₋₉ alkyl substituted derivatives thereof



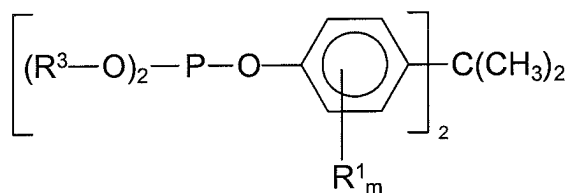
(IV), and

- (b) at least one second phosphite ester is selected from the group consisting of
 - (i) mixed phosphites having at least one C₈₋₁₅ alkyl moiety and at least one aryl moiety of formula (III)



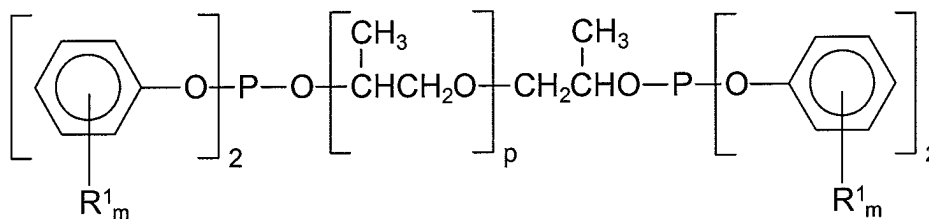
(III),

(ii) C₁₀₋₁₅ alkyl bisphenol-A phosphites of formula (IV)



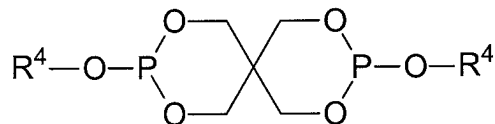
(IV),

(iii) poly- and mono- alkylene glycol phosphites of formula (V)



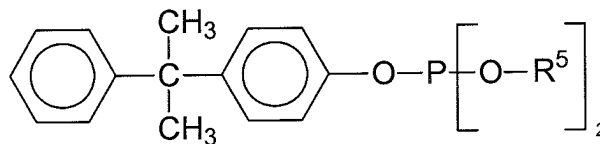
(V),

(iv) C₈₋₁₅ pentaerythritol phosphites of formula (VI)



(VI),

(v) mono- and di- C₈₋₁₅ alkyl *p*-cumyl phenol phosphites and C₁₋₄ alkyl substituted derivatives thereof of formula (VII)



(VII),

wherein

R¹ is independently selected from the group consisting of H and C₁₋₉ alkyl,

R² is selected from the group consisting of C₈₋₁₅ alkyl,

R³ is C₁₀₋₁₅ alkyl,

R⁴ is the same as R¹,

R⁵ is the same as R¹,

m is an integral value from 0 to 1 inclusive,

n is an integral value from 1 to 2, and

p is an integral value from 0 to 1 inclusive.

(c) a zinc additive wherein a molar ratio of P/Zn is from about 80:1 to 4:1; and

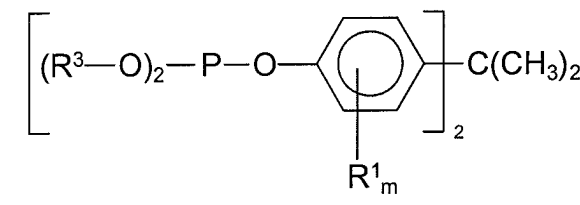
(d) said composition is essentially free of calcium, cadmium, barium and tin.

16. (currently amended) ~~The composition of claim 15 which further comprises~~ A stabilized vinyl resin which comprises:

(a) an additive composition for use as at least a partial replacement for mixed metal, alkali-metal and tin-based stabilizer additives for use in said vinyl resin; and

(b) polyvinyl chloride a halogenated resin; and

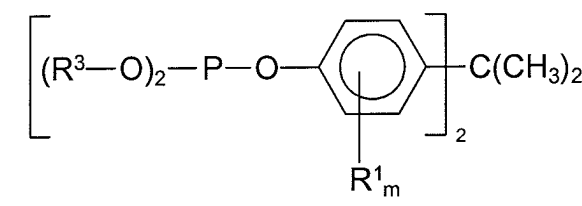
(c) wherein said additive composition consists of at least two phosphite esters, and further wherein a first phosphite ester is C₁₀₋₁₅ alkyl bisphenol-A phosphites of formula (IV) and C₁₋₉ alkyl substituted derivatives thereof



(IV), and

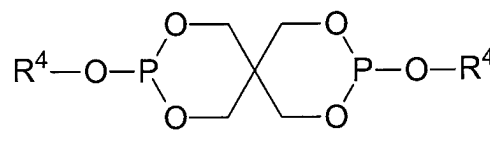
(d) at least one second phosphite ester which is selected from the group consisting of

(i) C_{10-15} alkyl bisphenol-A phosphites of formula (IV)



(IV),

(ii) C_{8-15} pentaerythritol phosphites of formula (VI)



(VI),

and wherein

R^1 is independently selected from the group consisting of H and C_{1-9} alkyl, and

R^3 is C_{10-15} alkyl, and

R^4 is the same as R^1 , and

m is an integral value from 0 to 1 inclusive, and

(e) a zinc additive for said additive composition wherein a molar ratio of P/Zn is from about 80:1 to 4:1; and

(f) _____ said additive composition is free of calcium, cadmium, barium and tin.

17. (original) The composition of claim 16 wherein a level of zinc is approximately 50 to 800 ppm zinc per 100 parts polyvinyl chloride.
18. (original) The composition of claim 17 wherein said level of zinc is approximately 100 to 500 ppm zinc per 100 parts polyvinyl chloride.
19. (original) The composition of claim 18 wherein said level of zinc is approximately 100 to 250 ppm zinc per 100 parts polyvinyl chloride.
20. (currently amended) The composition of claim 45 16 wherein said polyvinyl chloride is flexible polyvinyl chloride.